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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,732	03/11/2004	Charles E. Taylor	112440-129	4986

29190 7590 11/19/2007  
BELL, BOYD & LLOYD LLP  
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EXAMINER

BEHNCKE, CHRISTINE M

ART UNIT	PAPER NUMBER
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3661

MAIL DATE	DELIVERY MODE
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11/19/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/798,732

Applicant(s)

TAYLOR ET AL.

Examiner

Christine M. Behncke

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 96 is/are pending in the application.
- 4a) Of the above claim(s) 23-96 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 3/25/05 and 8/19/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This office action is in response to the Restriction Election submitted 8 September 2007, in which claims 1-22 were elected.

#### ***Election/Restrictions***

Applicant's election without traverse of claims 1-22 in the reply filed on 9/8/2007 is acknowledged.

Claims 23-96 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/8/2007.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 -22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer, US 5,677,836, in view of Okumura, US 4,674,048.

(Claims 1, 8, 9, 11, 12, 19, 20 and 22) Bauer describes a method of operating a robot comprising: a robot traversing a region of an environment (figure 1), mapping the region in a first internal map (local environment map 3B); and a second internal map of lower resolution (global environment map 3A, column 3, lines 46-51), wherein the global map is the larger environment map and room map (column 3, lines 15-40); wherein the first map contains information about the region being cleaned (figure 3B); and wherein a new internal map is prepared for the next region to be traversed (column 4, lines 6-26). Bauer explicitly describes wherein the local map is derived from the global map by applying trigonometric functions; it would have been obvious to one of ordinary skill in the art to use reverse- trigonometric functions to derive the global map from the local map. Bauer teaches that this is done to keep the maps separate and prevent the accumulation of errors, which would still be accomplished if the local map derives the global map.

(Claims 2 and 13) Bauer further describes wherein the first map is a subgrid map (figure 2).

(Claims 4 and 15) Bauer further describes wherein at least one of the first and second maps is composed of cells (figure 2).

Bauer does not teach that the robot is used for cleaning. However, Okumura teaches a robot cleaner that traverses a plurality of cells to clean a region of a room (abstract). IT would have been obvious to one of ordinary skill in the art to use the robot of Bauer with the teachings of Okumura to clean a traversed floor, as Okumura teaches it was well known in the robotic art to use a mobile robot to clean surfaces (column 1, lines 13-26).

(Claims 3 and 14) Okumura further teaches wherein the blocks of a map are cleaned in a serpentine clean (figure 3).

(Claims 5 and 16) Okumura further teaches that the internal map used for the robot is composed of cells (figure 3), and wherein the cells are marked as obstacle, cleaned or uncleaned (column 5, lines 6-18).

(Claims 6 and 17) Okumura further teaches wherein the width of a cell corresponds to portion of effective cleaning unit width of the robot cleaner (figures 5 and 9).

(Claims 7 and 18) Okumura further teaches wherein a cell can be set cleaned with a single straight line path segment of robot cleaner (column 4, lines 63-66).

(Claims 10 and 21) Okumura further teaches wherein when a map is cleared after the region has been cleaned (column 4, line 63-column 5, line 18).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine M. Behncke whose telephone number is (571) 272-8103. The examiner can normally be reached on 8:30 am- 5pm.

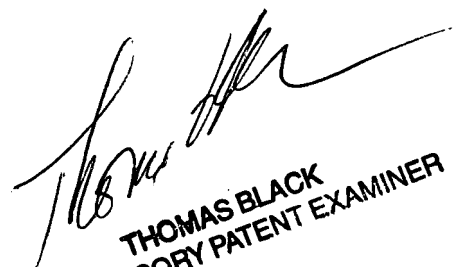
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CMB



THOMAS BLACK  
SUPERVISORY PATENT EXAMINER